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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,857	06/21/2001	Phillip S. Wilson	P 281189	6439

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EXAMINER

VO, HAI

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 06/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/868,857

Applicant(s)

WILSON, PHILLIP S.

Examiner

Hai Vo

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karande et al (US 5,717,000) taken alone or in view of Okada et al (US 4,739,007) as evidence by Clayton Chemistry. Karande discloses a polymer foam comprising a styrenic polymer, organophilic multi-layered particles in an amount of 3 wt% and one blowing agent in an amount of about 3 wt% (abstract, table III). Karande does not specifically disclose the platelet concentration in % by volume. However, Karande discloses a polymer foam exhibiting improved impact strength (column 5, lines 52-55), which is the same improvement disclosed in the presently the claimed product (Applicant's specification, page 4, lines 15-17). Applicant states that the amount of reinforcing particles is greater than 15% by volume, the viscosity of the composition becomes too high and thus difficult to mold. The amount of reinforcing particles is less than 2% by volume, the composition would not achieve the desired increase in strength (Applicant's specification, page 8, lines 12-20). Since the Karande's foam product exhibits the same improved impact strength as the presently claimed article, and there is no suggestion of the difficulty in processing of the foam in Karande, it is the examiner's position that the reinforcing particles in Karande must be used in a concentration (% by volume) within the claimed range to achieve that desired

strength and expectation of successfully practicing the invention of Karande. In addition, the specific gravity of bentonite (sodium montmorillonite) is 2.6, substantially greater than the specific gravity of most resin material especially in foamed foam. Thus, given the low wt% recited in conjunction with the small colloidal particle size, the volume% would be low as well. Further evidencing the range claimed instantly^{is} disclosed in the prior art but in alternative terms.

Karande is silent as to the thickness of the reinforcing particles. Okada teaches a composite material comprising a thermoplastic polymer and layers of a silicate wherein each of the silicate layers is 7 to 12 angstroms thick and the interlayer distance being at least 20 angstroms (abstract). Since the claim requires each reinforcing particle having a thickness of 0.7 to 1.2 nm, and Okada is using the same exfoliating process to form a platelet particle that has the thickness meeting exactly the claimed range. It is the examiner's position that the range of the layer distribution within the platelet particle (more than about 50% of the reinforcing particles are less than 20 layers thick, and wherein more than about 99% of the reinforcing particles are less than about 30 layers thick) would be substantially inherently present in the reinforcing particles of Okada. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the reinforcing particle having the thickness as taught in Okada motivated by the desire to impart the mechanical strength and temperature resistance of the foam (Okada, column 3, lines 26-30).

In addition, the examiner respectfully wishes to point out that Karande is using a montmotillonite clay commercially sold as CLAYTON HY TM and the same exfoliation process to form platelet particles as Applicant (Karande, column 2, lines 11-65 vs. Applicant's specification, page 6, lines 13-14). It is well-known in the art, a montmotillonite clay has a uniform size of 0.92 nm thickness (The Clayton Chemistry, page 2) within the claimed range 0.7 to 1.2 nm. Putting these things together, the range of the layer distribution within the platelet particle (more than about 50% of the reinforcing particles are less than 20 layers thick, and wherein more than about 995 of the reinforcing particles are less than about 30 layers thick) would be substantially inherently present in the montmotillonite clay of Karande (the particle thickness within the claimed range, an identical raw material and the similar process employed to produce the platelet particles). Since Applicant also appears to use CLAYTON HY TM without further modification and Karande uses this specific clay, it is not seen how the reference can fail to meet the claimed percentages and layer thickness. Products of identical chemical composition can not have mutually exclusive properties. In re Spada, 15 USPQ 2d 1655 (1990).

Specification

3. The specification is objected to because of the following reasons. The use of the trademark CLAYTON HY has been noted in this application (page 6, line 14). It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

WITHDRAWAL OF FINALITY

4. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Response to Arguments

5. The art rejections over Karande in view of Christiani have been overcome by the present arguments.
6. The art rejections over Karande in view of Okada have been maintained for the following reasons. The examiner absolutely agrees with Applicant that Karande does not specifically disclose the platelet concentration in % by volume. However, this by itself does not preclude the disclosure from anticipating or rendering obvious the instant claims to that end. Karande discloses a polymer foam exhibiting improved impact strength (column 5, lines 52-55), which is the same improvement disclosed in the presently the claimed product (Applicant's specification, page 4, lines 15-17). Applicant states that the amount of reinforcing particles is greater than 15% by volume, the viscosity of the composition becomes too high and thus difficult to mold. The amount of reinforcing particles is less than 2% by volume, the composition would not achieve the desired increase in strength (Applicant's specification, page 8, lines 12-20). Since the Karande's foam product exhibits the same improved impact

strength as the presently claimed article, and there is no suggestion of the difficulty in processing of the foam in Karande, it is the examiner's position that the reinforcing particles in Karande must be used in a concentration (% by volume) within the claimed range to achieve that desired strength and expectation of successfully practicing the invention of Karande. In addition, the specific gravity of bentonite (sodium montmorillonite) is 2.6, substantially greater than the specific gravity of most resin material especially in foamed foam. Thus, given the low wt% recited in conjunction with the small colloidal particle size, the volume% would be low as well. Further evidencing the range claimed instantly disclosed in the prior art but in alternative terms.

Neither the cited art specifically suggests or discloses more than about 50% of the reinforcing particles are less than 20 layers thick, and wherein more than about 99% of the reinforcing particles are less than about 30 layers thick. However, Okada teaches a composite material comprising a thermoplastic polymer and layers of a silicate wherein each of the silicate layers is 7 to 12 angstroms thick and the interlayer distance being at least 20 angstroms (abstract). Since the claim requires each reinforcing particle having a thickness of 0.7 to 1.2 nm, and Okada is using the same exfoliation process to form a platelet particle that has the thickness meeting exactly the claimed range. It is the examiner's position that the range of the layer distribution within the platelet particle (more than about 50% of the reinforcing particles are less than 20 layers thick, and wherein more than about 99% of the

reinforcing particles are less than about 30 layers thick) would be substantially inherently present in the reinforcing particles of Okada.

In addition, the examiner respectfully wishes to also point out that Karande is using a montmotillonite clay commercially sold as CLAYTON HY TM and the same exfoliation process to form platelet particles as Applicant (Karande, column 2, lines 11-65 vs. Applicant's specification, page 6, lines 13-14). It is well-known in the art, a montmotillonite clay has a uniform size of 0.92 nm thickness (The Clayton Chemistry, page 2) within the claimed range 0.7 to 1.2 nm. Putting these things together, the range of the layer distribution within the platelet particle (more than about 50% of the reinforcing particles are less than 20 layers thick, and wherein more than about 995 of the reinforcing particles are less than about 30 layers thick) would be substantially inherently present in the montmotillonite clay of Karande (the particle thickness within the claimed range, an identical raw material and the similar process employed to produce the platelet particles). Since Applicant also appears to use CLAYTON HY TM without further modification and Karande uses this specific clay, it is not seen how the reference can fail to meet the claimed percentages and layer thickness. Products of identical chemical composition can not have mutually exclusive properties. In re Spada, 15 USPQ 2d 1655 (1990).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (703) 605-4426.

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The examiner can normally be reached on Tue-Fri, 8:30-6:00 and on alternating Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

HV
June 18, 2003


TERREL MORRIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700